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| APPLICATION NO.   | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---|-------------|----------------------|---------------------|------------------|
| 09/986,243  | 11/08/2001  | Ting-Feng Wu         | MR929-711           | 5032             |
| 4586  | 7590        | 10/22/2004           | EXAMINER            |                  |
| ROSENBERG, KLEIN & LEE<br>3458 ELLICOTT CENTER DRIVE-SUITE 101<br>ELLICOTT CITY, MD 21043 |             |                      | WANG, QUAN ZHEN     |                  |
|   |             |                      | ART UNIT            | PAPER NUMBER     |
|   |             |                      | 2633                |                  |

DATE MAILED: 10/22/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

|                              |                                      |                                  |  |
|------------------------------|--------------------------------------|----------------------------------|--|
| <b>Office Action Summary</b> | <b>Application No.</b><br>09/986,243 | <b>Applicant(s)</b><br>WU ET AL. |  |
|                              | <b>Examiner</b><br>Quan-Zhen Wang    | <b>Art Unit</b><br>2633          |  |

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 08 November 2001.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-5 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1 and 3-5 is/are rejected.
- 7) ☒ Claim(s) 2 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☒ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

1. Claim 1 is rejected under 35 U.S.C. 103(a) as being anticipated by Tervonen et al. (U.S. Patent US 6,421,149 B2).

Regarding claim 1, Tervonen et al. disclose a method for switching optical channels comprising the steps of: providing a first switching device (fig. 2b, SWITCH near the SOURCE) and a second switching device (fig. 2B, SWITCH on the right), respectively connected to a first optical terminal (fig. 2b, SOURCE) and a second optical terminal (not shown) wherein multiple optical channels (fig. 2B, OF1 and OF2) are connected between the first switching device and the second switching device.

Tervonen et al. differ from the claimed invention in that Tervonen et al. do not specifically disclose detecting whether any optical signals are transmitting between the first switching device and the second switching device over a first one of the multiple optical channels or not; locking one of the multiple optical channels when the optical signals are transmitting between the first switching device and the second switching device switching the first switching device to a second one of the multiple optical channels when there is no optical signals transmission over the first one of the multiple

optical channels, and then switching the second switching device to the second one of the multiple optical channels that the first switching device switches to, whereby the first and the second switching devices are in communication. However, Tervonen et al. disclose to detect whether any optical signals are transmitting between the first switching device and the second switching device over a first one of the multiple optical channels or not (fig. 3, C1, MU1; and C2, MU2); and to lock the multiple optical channels when the optical signals are transmitting between the first switching device and the second switching device (column 5, lines 26-33); switching the first switching device to a second one of the multiple optical channels when there is no optical signals transmission over the first one of the multiple optical channels, and then switching the second switching device to the second one of the multiple optical channels that the first switching device switches to, whereby the first and the second switching devices are in communication (column 5, lines 15-17). Therefore, it would have been obvious for one of ordinary skill in the art at the time when the invention was made to apply the signal detecting, switching, and locking methods taught by Tervonen et al. in Fig. 3 to the system disclosed in Fig. 2 so that the modified system can provide reliable signal transmission in a failure situation.

2. Claims 3-4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tervonen et al. (U.S. Patent US 6,421,149 B2) in view of Wayman et al. (U.S. Patent US 5,710,846) and Rauch (U.S. Patent US 6,243,510 B1).

Regarding claim 3, Tervonen et al. disclose a switching device in fig. 2b for optical channels, the switching device comprising: two optical switches (fig. 2,

Art Unit: 2633

SWITCH's), wherein each optical switch has multiple ports, each of the multiple ports respectively adapted to link to one of optical channels, and each optical switch has a common end adapted to connect to an optical terminal (first terminal: fig. 2b, SOURCE, second terminal is not shown). Tervonen et al. differ from the claimed invention in that Tervonen et al. do not specifically disclose in fig. 2b a switch-controlling control circuit connected to the optical switches; an optical power meter having an output connected to the switch-controlling circuit for monitoring light signals transmission over the optical channels and intercepting a small amount of the light signals; a serial interface connected to the output of the switch-controlling circuit for being an interface with electrical equipment. However, Wayman et al. disclose in fig. 1 a switch-controlling control circuit (fig. 1, 36) connected to the optical switches (fig. 1, 30); an optical power meter (fig. 1, 38 and 50) having an output connected to the switch-controlling circuit for monitoring light signals transmission over the optical channels and intercepting a small amount of the light signals (fig. 1, 24). Therefore, it would have been obvious for one of ordinary skill in the art at the time when the invention was made to apply the optical detector and optical switch control circuit taught by Wayman et al. in the system taught by Tervonen et al. in order to switch the optical path selectively according to the conditions of the system and provide reliable signal transmission. Tervonen et al. and Wayman et al. do not further teach a serial interface connected to the microprocessor. However, Rauch teaches a switch controlling circuit comprising a microprocessor connected to a serial interface (fig. 1, the connection between 30 and 38). Therefore, it would have been obvious for one of ordinary skill in the art at the time when the

invention was made to apply the serial interface taught by Rauch in the system taught by Tervonen et al. and Wayman et al. in order to provide control instructions electronically.

Regarding claim 4, Wayman et al. further teach an analog/digital converter connected to the microprocessor for converting the small amount of the light signals into a digital signals and passing the digital signals into the microprocessor (Wayman, fig. 1, 50); and Rauch further teaches the microprocessor having a keypad (fig. 1, 32).

3. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Tervonen et al. (U.S. Patent US 6,421,149 B2) in view of Wayman et al. (U.S. Patent US 5,710,846) and Rauch (U.S. Patent US 6,243,510 B1) and further in view of Ames et al. (U.S. Patent US 6,528,777 B2).

Regarding claim 5, in the modified system, Tervonen et al., Wayman et al. and Rauch teach an optical power meter to monitor the optical signal formed with an optical splitter (Wayman, fig. 1, 16), a PIN diode (Wayman, fig. 1, 38). And the modified system inherently connected the optical switch to the common end of the optical switch (Tervonen et al., column 2, lines 7-11). The modified system taught by Tervonen et al., Wayman et al. and Rauch differs from the claimed invention in that Tervonen et al., Wayman et al. and Rauch do not specifically teach a signal amplifier connected to the PIN (detector). However, Ames et al. teach an optical power meter in which the detector (fig. 2, 212) is connected to a signal amplifier (fig. 2, 220). Therefore, it would have been obvious for one of ordinary skill in the art at the time when the invention was

made to provide an optical detector with an amplifier such as the one of Ames in the monitoring circuit of Tervonen to provide an opto-electric circuit that monitors the power of receiving light.

***Allowable Subject Matter***

4. Claim 2 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter:

Claim 2 is allowable since prior art of record does not teach or suggest in establishing a master-slave relationship between the first and the second switching devices, and setting the signal detecting and waiting time of the master device to  $t = (n+1)*T$  and setting the detecting and waiting time of the slave device to  $T$ .

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Quan-Zhen Wang whose telephone number is (571) 272-3114. The examiner can normally be reached on 8:30 AM - 5:00 PM, Monday - Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jason Chan can be reached on (571) 272-3022. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Art Unit: 2633

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
**M. R. SEDIGHIAN**  
**PRIMARY EXAMINER**

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